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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

SAHU, MEENAKSHI S

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/587,105	Applicant(s) FROSIEN, JUERGEN	
	Examiner MEENAKSHI S. SAHU	Art Unit 2881	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 July 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-43 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 July 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>8/27/07, 8/24/09</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Receipt is acknowledged of preliminary amendments to claims 1 to 43, filed 7/21/2006.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority based on an EP application No. 04001222 filed on 1/21/2004. It is noted, however, that applicant has not filed a certified copy of the EP application as required by 35 U.S.C. 119(b).

Claim Objections

3. Claim 10 is objected to because of the following informalities: The "the third element" (..whereby at least one of the third element ..) should read as "the three elements". Appropriate correction is required. The Examiner's comments below assume that this is the case.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1 to 43 are rejected under 35 U.S.C. 102(b) as being anticipated by Essers (US 6,590,210).

Claims 1, 4, 5 and 39, 40, 41:

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Essers discloses a method of alignment and a beam optical component comprising a charged particle lens [electrostatic lens formed by electrodes = elements 18, 44, 50 and 55 in Fig 1; col 6 line 5] for focusing a charged particle beam [= electron beam, abstract], the charged particle lens comprising: a first element [electrodes = element 44, 55 in Fig 1] having a first opening defining a first space through which the charged particle beam can propagate [Fig 1]; a second element having a second opening [element 18 in Fig 1] defining a second space through which the charged particle beam can propagate [Fig 1]; and first driving means coupled to at least one out of the first element and the second element for aligning the first opening with respect to the second opening [col 6 lines 5 to 16].

Essers discloses focusing the electrostatic lens [formed by electrodes 18, 44, 50 and 55] by adjusting the electric field and therefore the voltages between them [col 5 lines 36 to 47]. Essers also discloses aligning the electrostatic lens or centering the electron beam around the optical axis [col 6 lines 5 to 16]. Essers also discloses using an SEM and combining it with an image processing programs [col 7 lines 65 to 67]. Since the driving means for electrodes is disclosed [col 6 lines 5 to 16], it would be inherently possible to scan the charged particle beam across the specimen and generate a first image with a first set of voltages applied to the first and second electrodes, then scan the charged particle beam across the specimen and generate a second image with a second set of voltages, move the first element with respect to the second element (using the driving means) and repeat the second scanning until at least one structure element of the specimen is identified in the second image.

Claims 2, 3 and 42:

Essers discloses a third element or electrode [elements 50 and 55 in Fig 1] which has a third opening and defines a first second or third central axis [Fig 1].

Claims 6, 7 and 13:

Essers discloses a third electrode but does not explicitly disclose a driving means for the third electrode. It would be a simple task to add a driving means to the third electrode and use it for aligning the electrode as Essers does disclose a driving means for two electrodes which can move in the x and y directions or laterally [col 6 lines 5 to 16].

Claims 8 and 43:

Essers discloses a charged particle beam source [claim 1].

Claim 9:

Essers discloses an extraction electrode [col 23 lines 4 to 8].

Claims 10 and 11:

Essers discloses at least one of the three elements is an electrode for focusing the beam [Fig 1 and see discussion for claim 1 above].

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Claim 12:

Essers discloses that electrode =element 44 is shaped to serve as a beam aperture [Fig 1].

Claims 14 to 16:

Essers discloses that at least one of the driving means is capable of driving an electrode in a direction perpendicular to the first direction since the mount [= element 40 in Fig 4] for the electrode [= element 44 in Fig 4] is a spring element. The spring element is capable of driving the electrode in the perpendicular direction.

Essers also discloses that one electrode can be centered on the optical axis using piezoelectric control systems acting in the x and y directions [col 6 lines 5 to 16]. Piezoelectric elements are capable of providing steps or spatial resolutions of better than 10 μm .

Claims 17 and 18:

Essers discloses aligning the electrostatic lens or centering the electron beam around the optical axis [col 6 lines 5 to 16]. Essers also discloses using an SEM and combining it with an image processing programs [col 7 lines 65 to 67]. Hence it would be a simple matter to measure the actual location of the first or second opening with respect to the second or third opening using calibration SEM images, and using that information to adjust the location of the first or second opening using the driving means.

Claims 19 and 20:

Essers discloses that one electrode can be centered on the optical axis using

piezoelectric control systems acting in the x and y directions [col 6 lines 5 to 16]. The piezoelectric control systems likely have motors which can be remotely controlled.

Claims 21 and 22:

Essers discloses two electrodes [elements 44 and 18 in Fig 4] are shaped for focusing of the charged particle beam and that the distance between electrodes 18 and 44 in Fig 4 is at least 10% larger than the distance between electrodes 50 and 44 in Fig 4.

Claim 23:

Essers discloses the thickness of the rim of electrode 18 in Fig 4 is at least larger than by a factor of two, than the rim of electrode 44 in Fig 4.

Claim 24:

Essers discloses that the openings of electrodes 44 and 18 have essentially the same size [Fig 2].

Claims 25 to 29:

Essers discloses that at least one out of the first, second and third openings are rotationally symmetric with respect to the central axes [Figs 1 to 3]. Essers do not explicitly disclose the openings are rectangular. However the use of rectangularly shaped openings in the instant application is a design choice and does not have any particular advantage over circularly shaped openings. Similarly the use of distance pieces does not have any other function other than to maintain the distance between the electrodes and whether the distance piece is spherical is a design choice. Essers

also discloses a holding piece for abutting the second electrode [element 40 in Fig 4 holds the electrode 44 and abuts this electrode].

Claims 30 to 32:

Essers discloses first driving means coupled to at least one out of the first element and the second element for aligning the first opening with respect to the second opening [col 6 lines 5 to 16]. Esser also discloses more than three elements or electrodes each have openings for focusing the charged particle beam [Fig 1]. Essers discloses a third electrode but does not explicitly disclose a driving means for the third electrode. It would be a simple task to add a driving means to the third electrode and use it for aligning the electrode as Essers does disclose a driving means for two electrodes which can move in the x and y directions or laterally [col 6 lines 5 to 16].

Claim 33:

Essers discloses at least one of the first and second openings is smaller than the third opening by a factor of 2 [in Fig 4, openings corresponding to electrode 44 and 18 are smaller than the opening corresponding to electrode 50].

Claim 34:

Essers discloses focusing a charged particle beam onto a specimen [element 11 in Fig 2; col 7 lines 12 to 18] using a beam optical component comprising a charged particle lens [electrostatic lens formed by electrodes = elements 18, 44, 50 and 55 in Fig 1]

Claims 35 to 38:

Essers discloses a specimen holder [Fig 8] to hold the specimen and a beam aperture to limit the aperture angle of the charged particle for inspecting the specimen [electrode 44 in Fig 8]. Essers discloses electrode 18 is located between aperture and the specimen [Fig 8]. Essers does not explicitly disclose an objective lens, however SEMs routinely include objective lens at various locations along the axis of the electron beam.

Double Patenting

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422

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F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 1 to 43 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 to 20 of U.S. Patent No. 7,675,042 although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims disclose a beam optical component for acting on a charged particle beam, comprising: a first element having a first opening for acting on said charged particle beam; at least one second element for acting on said charged particle beam; a third element; a distance piece and various minimum distances between the three elements.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MEENAKSHI S. SAHU whose telephone number is (571)270-3101. The examiner can normally be reached on Monday - Friday 8AM - 5PM est.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jack I. Berman/
Primary Examiner, Art Unit 2881

/MEENAKSHI S SAHU /
Examiner, Art Unit 2881